Pavol Jozef Šafárik University in Košice, Faculty of Medicine
Department of Medical Informatics

CURRICULUM OF THE COURSE

Subject:	Medical Informatics		
Prerequisites:			
Study programme:	General medicine	***Form of study:***	daily
Category:	compulsory	***Study period:***	1
Teaching form:	practicals	***Range:***	2 hours / week
Evaluation:	obtained credits	***Credits:***	2

Week	***Practical lesson***
1.	**Basic terms.** Informatics, information technologies, utilization of informatics tools in medicine, medical informatics, eHealth, electronic health record, ePrescription, eMedication, eAllocation, Hospital Information Systems, Laboratory Information systems, Clinical Information Systems, Radiology Information Systems and PACS, telemedicine, bioinformatics, electronic signature, eLearning in medicine.
2.	**Database systems.** Databases, data processing, operation principle, principles of databases. Initiation of database system, adaptation of main settings, working with database. Design of database tables, creation of new fields, specification of primary keys, fields properties, input mask.
3.	Relations between database tables, referential integrity, data registration and modification, calculations, data import and export, datasheet formatting options, adding and changing subdatasheet.
4.	Forms in database, creation and modification of database forms, forms with subforms, graphical modifications, adding and working with the fields in forms, data editing using linked forms, selection of fields, tab indexes, managing controls in the forms.
5.	Working with data in the database, searching for information, data filtering and sorting, advanced filtering. Queries, creation of queries, selective query, crosstab query, data modifying queries, data selection criteria, summaries, expressions in queries. *Written test.*
6.	Reports in database, report generation, adaptation of reports for printing, report header, page header, detail, page footer and report footer.
7.	**Introduction of biomedical statistics.** Data organization, sorting and filtering data, functions, calculations and counts. *Practical test.*
8.	Basics of descriptive statistics, pivot tables, graphical forms of data presentation. Descriptive statistics, average and means, median, modus, dispersion, standard deviation, coefficient of variance.
9.	Frequencies, relative frequency, cumulative frequency, frequency tables, histograms of frequencies, normal distribution, skewness, kurtosis, correlation coefficient.
10.	**Evidence based medicine.** Significance of systematic reviews in EBM, main principles, formulation of clinical question, evidences searching methods. Tools of critical analysis used in searching results, hierarchy of evidences, clinical studies, review articles, systematic reviews databases. Searching for evidences in electronic databases.
11.	**Terminology in medicine.** SNOMED, UMLS, MeSH, searching in information sources. *Presentation of clinical studies (practical test).*
12.	**Hospital information systems.** Operation principles, advantages, utilization, modules in HIS. Communication between users. Outpatient clinic in HIS, interface description, creation of new outpatient clinic card, anamnesis, consilium, printing records.
13.	**Radiology Information Systems.** Working with PACS. Advantages of electronic picture documentation, practical utilization, standards (DICOM), study of anonymous records.

14.	**Laboratory information systems.** Operation principle, advantages, usability of LIS. Registration of patients, requisitions and results of examination. Working with results of biochemistry laboratory, data registration, statistics, and outputs. *Knowledge evaluation.*

Requirements to complete the course:

1. 100% and active attendance.
2. Min. 60% from each test during the term.
3. Elaboration of all given classworks.

Recommended literature:

1. Majerník J., Švída M., Majerníková Ž.: Medicínska informatika, UPJŠ, Košice 2010, Equilibria, ISBN 978-80-7097-811-5.
2. Majerník J., Kotlárová K.: Medicínska informatika 2 - Nemocničný informačný systém, UPJŠ, Košice 2010, Equilibria, ISBN 978-80-7097-812-2.
3. Majerník J.: Základy informatiky, Košice 2008, Aprilla, ISBN 978-80-89346-03-5.
4. Notes from exercises.
5. Manuals of information systems used in health care system.

Last modified: 23. January 2015